Commonwealth of Kentucky
Division for Air Quality

PERMIT APPLICATION SUMMARY FORM

Completed by: Chris Walling

GENERAL INFORMATION:

Name:	Jim Beam Brands Co. Plant #2 - Booker Noe Distillery
Address:	1600 Lebanon Junction Road Boston, KY 40107
Date application received:	12/12/2008
SIC Code/SIC description:	2085, Distilled and Blended Liquors (except apple jack)
Source ID:	21-179-00014
Agency Interest:	3261
Activity:	APE20080001
Permit:	V-09-010

APPLICATION TYPE/PERMIT ACTIVITY:

[ ] Initial issuance	[ ] General permit
[ ] Permit modification	[ ] Conditional major
__Administrative	[X] Title V
__Minor	[X] Synthetic minor
__Significant	[X] Operating
[X] Permit renewal	[ ] Construction/operating

COMPLIANCE SUMMARY:

[ ] Source is out of compliance [ ] Compliance schedule included

[X] Compliance certification signed

APPLICABLE REQUIREMENTS LIST:

[ ] NSR	[X] NSPS	[X] SIP
__ Non-Attainment	[ ] NESHAPS	[ ] Other
__ PSD	[X] CAM	
X Netted out of PSD/NSR		
__ Not major modification per 401 KAR 51:001, 1(116)(b)		

MISCELLANEOUS:

[ ] Acid rain source

[ ] Source subject to 112(r)

[X] Source applied for federally enforceable emissions cap

[ ] Source provided terms for alternative operating scenarios

[ ] Source subject to a MACT standard

[ ] Source requested case-by-case 112(g) or (j) determination

[ ] Application proposes new control technology

[X] Certified by responsible official

[ ] Diagrams or drawings included

[ ] Confidential business information (CBI) submitted in application

[ ] Pollution Prevention Measures

[ ] Area is non-attainment (list pollutants):

EMISSIONS SUMMARY:

Pollutant	Actual (tpy)	Potential (tpy)
PM/PM_{10}	91.67	38.45
SO_2	186.09	346.00
NOx	64.62	158.15
CO	37.22	121.83
Non-fugitive VOC	10.96	38.19
Total VOC	2454.54	2781.48
HCl	4.78	9.04
Source wide HAPs	4.78	11.74

SOURCE DESCRIPTION:

On December 15, 2008, the source applied to the Division for the renewal of their operating permit V-03-009 R5 for the operation of a bourbon distillery facility in Boston, Kentucky. The facility makes distilled spirits. Grain is unloaded and conveyed to hammermills where it is ground. The grain is fed into mash cookers along with water, and the grain starches are converted to sugars by heating. The cooked grain/water mixture is fed into fermenter vessels as a batch operation to convert the sugars into ethanol. After an appropriate residence time, the mixture is processed through distillation columns and condensers. The condensed liquid is fed to spirit tanks and then gauged at the cistern tanks prior to barrel filling. The spent stillage is then dried with a ring dryer and put into a storage room. Whiskey from the cistern tanks is put into barrels until the appropriate age is reached. The barrels are then gravity dumped, rolled, and rinsed at the dumping station. After dumping, the whiskey is fed to the regauge tanks, where it may be processed and sent to be loaded for shipment.

The facility has expanded its capacities under a series of permit revisions to approximately 31% of its previous capacity. To preclude the applicability of 401 KAR 51:017, Prevention of Significant Deterioration, for Emission Units 03, 04 and 07, the net emissions increase of VOC and NOx shall not exceed 35 tons in any twelve (12) consecutive months(V-03-009R5). In this application the facility has requested to remove the operating limit and keep the emissions limits. Based on the date of commencement of the expansion project, baseline years for the emissions limits were 2002 and 2003.

The cyclone on the coal boiler was replaced with a modular pulse-jet baghouse using P-84 Polyamide needled felt operating at 99.8% efficiency. Also a lime injection system to control hydrogen chloride (hcl) has been installed upstream of the baghouse, reducing hcl by 78%. The Oil-fired boilers were replaced with a single Natural Gas-fired boiler. The process of drying out the mash after distillation has been modified a great deal, with all the components brought inside a single building, and all non-fugitive emission units serviced by a common baghouse. One warehouse was removed, and nine were added. The distillation process itself has been greatly expanded.

EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

To preclude the applicability of Section 112(j) of the CAA beginning September 13, 2007, source-wide emissions of a single hazardous air pollutant (HAP), shall not exceed 9.0 tons and total or combined HAP's shall not exceed 22.5 tons in any consecutive twelve-month period.

In order to ensure non-applicability of 401 KAR 51:017 (Prevention of Significant Deterioration of Air Quality) for Emission Units 03, 04 and 07, the net emissions increase of VOC and NOx shall not exceed 35 tons in any twelve (12) consecutive months. This will be achieved through the following calculations.

EQ-1: VOC net emissions increase, 12-month rolling total:
- Use production data for the most recent 12-month period when calculating 12-month Rolling Total

Net emissions Increase (tons) = Unit 3 VOC + Unit 4 VOC + Unit 8 VOC - Baseline actual emissions
Where:

$$\text{Unit 3 VOC} = \frac{6.59[\text{lb VOC/gal}] \times 28.5[\text{gal/bu}] \times \frac{0.045\ \text{Proof}}{2x100} \times \text{Throughput [bu/yr]}}{2000\ [\text{lb/ton}]}$$

$$\text{Unit 4 VOC} = \frac{0.0178[\text{lb/bu}] \times \text{Throughput [bu/yr]}}{2000\ [\text{lb/ton}]}$$

$$\text{Unit 7 VOC} = \frac{5.5[\text{lb/mmcf}]\text{xBoilerNatGas[mmcf/yr]}+0.5[\text{lb/mgal}]\text{x BoilerPropane[mgal/yr]}}{2000\ [\text{lb/ton}]}$$

EQ-2: NOx net emissions increase, 12-month rolling total:
- Use production data for the most recent 12-month period when calculating 12-month Rolling Total

Net emissions Increase (tons) = Unit 4 NOx + Unit 8 NOx - Baseline actual emissions
Where:

$$\text{Dryer NOx} = \frac{.04[\text{lb/mmbtu}]\text{x}1050[\text{mmBTU/mmcf}]\text{xDryerNatGas[mmcf/yr]} + 19[\text{lb/mgal}]\text{xDryerPropane[mgal/yr]}}{2000\ [\text{lb/ton}]}$$

$$\text{Boiler NOx} = \frac{.09[\text{lb/mmBTU}]\text{x}1050[\text{mmBTU/mmcf}]\text{xBoilerNatGas[mmcf/yr]} + 19[\text{lb/mgal}]\text{xDryerPropane[mgal/yr]}}{2000\ [\text{lb/ton}]}$$

Unit 3 is Emission point 03-001 Spent Stillage
Unit 4 is Emission point 04-001 Spent Grain Drying
Unit 8 is Emission point 08-002 Indirect Heat Exchanger (88.85 mmBtu/hr N.G./Propane)